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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,553	12/11/2003	Wai T. Lam	34826-1014	7752

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EXAMINER	
PATEL, HETUL B	
ART UNIT	PAPER NUMBER
2186	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,553	LAM ET AL.	
	Examiner	Art Unit	
	Hetul Patel	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 10-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 10-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment and arguments filed on February 22, 2007. Claims 1, 5, 10, 14-16, 18, 29, 32 and 34 are amended; claims 35-42 are newly added; and none of the claims are cancelled. Therefore, claims 1-5 and 10-42 are currently pending in this application.

2. Applicant's arguments filed on February 22, 2007 have been fully considered but they are not persuasive.

3. The rejection of claims 1-5 and 10-34 as in the previous Office Action is respectfully maintained but updated to show the changes made by the amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 18-24, 35-36 and 42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The element "the second processor" for performing specific steps as disclosed in claims 18, 35 and 42 are not described in the specification of the instant application. Claims 19-24 are also rejected for the same reason(s) as they further limit the claim 18.

With respect to claim 36, it is unclear how a processor, which normally a part of a computer, comprise at least one computer? Although the specification of the current application supports for a software program installed on a (client) computer, which is equated with the claimed "at least one processor", the specification does not have support for the limitation "at least one processor comprises at least one computer" as recited in claim 36.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 37 recites the limitation "the computer" in lines 2 and 3. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 10-11, 13, 18, 20, 25-26, 28-29, 31-32, 34-35 and 37-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Polfer et al. (USPN: 6,665,779) hereinafter, Polfer.

As per claim 1, Polfer teaches a method for replicating data from a storage device (i.e. 100 in Fig. 1A), comprising identifying one or more allocated storage locations (i.e. the blocks B0-B3 in Fig. 3A; B0-B23 in Fig. 3B; BE0-BE23 in Figs. 5A-5B) on the storage device (i.e. 100 in Fig. 1A) based, at least in part, on a file system associated with the storage device (e.g. see Figs. 1A, 3A-3B and 5A-5B). Polfer further teaches that each block (i.e. each of BE0-BE23 in Fig. 5B) in the storage device (i.e. 500 in Fig. 5B) includes a flag (i.e. flag in Fig. 5B) indicating whether the corresponding block is to be backed up/replicated (i.e. by marking used/unused flag). The further step of recording is inherently taught by the Polfer because in order to determine whether the "used" or "unused" flag should be assigned to a particular block, the particular block needs to be read (i.e. I/O access by performing a read operation) first to generate the block map and to determine whether data exist in it or not and then each block get recorded as either the "used" or "unused" flag based on if it's backed up, i.e. read, i.e. I/O access is performed (e.g. see Col. 8, lines 21-31 and Fig. 5B). Polfer further teaches about identifying, based on the recorded I/O access information (i.e. based on the recorded flags in Fig. 5B which are generated by performing at least one read (I/O

access) operation), one or more data blocks on the storage device that contain valid data; and replicating the data blocks that contain valid data (e.g. see Col. 8, lines 32-40 and Fig. 5B).

As per claim 2, Polfer teaches the claimed invention as described above and furthermore, Polfer teaches that the at least one read operation includes reading metadata (i.e. flags) associated with one or more files (i.e. blocks of clusters/data) on the storage device (e.g. see Col. 5, lines 15-23).

As per claims 10 and 11, see arguments with respect to the rejection of claims 1-2, respectively. Claims 10 and 11 are also rejected based on the same rationale as the rejection of claims 1-2, respectively.

As per claims 18 and 20, see arguments with respect to the rejection of claims 1-2, respectively. Claims 18 and 20 are also rejected based on the same rationale as the rejection of claims 1-2, respectively.

As per claims 26, 29 and 32, see arguments with respect to the rejection of claims 1-2. Claims 26, 29 and 32 are also rejected based on the same rationale as the rejection of claims 1-2.

As per claim 13, Polfer teaches the claimed invention as described above and furthermore, Polfer teaches that a computer associated with the storage device (e.g. see Col. 5, lines 30-40).

As per claim 25, Polfer teaches the claimed invention as described above and furthermore, Polfer teaches that the file system is structured on a file level (e.g. see Col. 5, 33-38).

As per claim 28, 31 and 34, Polfer teaches the claimed invention as described above and furthermore, Polfer teaches that the list and the replicated data blocks are stored in a memory (i.e. a backup medium) (e.g. see Col. 8, lines 32-40 and Fig. 5B).

As per claim 35, see arguments with respect to the rejection of claim 1. Claim 35 is also rejected based on the same rationale as the rejection of claim 1.

As per claim 37, Polfer teaches the claimed invention as described above and furthermore, Polfer teaches that the at least one processor comprises: a first and a second software program operating on the computer (e.g. see Col. 5, lines 30-43).

As per claim 38, Polfer teaches a method of replicating data from a storage device (i.e. 100 in Fig. 1A), comprising: receiving a message to replicate data stored on a storage device (inherent feature; since some kind of message/signal has to come either from the processor or the user to initiate the backup process); in response to the message, storing in a file information (i.e. the block map) identifying one or more data blocks on the storage device containing valid data (i.e. setting flags in the block map by examining/reading the data blocks of the storage device); and replicating one or more data blocks stored on the storage device, based at least in part, on the information in the file (e.g. see Col. 8, lines 32-40 and Col. 6, lines 15-29).

As per claim 39, Polfer teaches the claimed invention as described above. The further step of recording is inherently taught by the Polfer because in order to determine whether the "used" or "unused" flag should be assigned to a particular block, the particular block needs to be read (i.e. I/O access by performing a read operation) first to generate the block map and to determine whether data exist in it or not and then each

block get recorded as either the "used" or "unused" flag based on if it's backed up, i.e. read, i.e. I/O access is performed (e.g. see Col. 8, lines 21-31 and Fig. 5B).

As per claims 40-41, Polfer teaches the claimed invention as described above and furthermore, Polfer teaches that receiving message(s) for initiating and ending the recording of I/O accesses performed by the storage device, i.e. by starting and ending the back-up process of data from the storage device (e.g. see abstract).

As per claim 42, see arguments with respect to the rejection of claims 38-41. Claim 42 is also rejected based on the same rationale as the rejection of claims 38-41.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 3, 12, 21 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polfer in view of Long et al. (USPN: 2003/0195865) hereinafter, Long.

As per claim 3, Polfer teaches the claimed invention as described above. However, Polfer does not teach that reading metadata includes reading the name of the file, access permissions to the file, the date of creation of the file, and dates of modification of the file. Long, on the other hand, teaches that information about files is generally referred to as the file system "metadata". Examples of metadata associated

with files are: (1) a document's name, creation date, last modified date (2) permissions for accessing the document, and (3) the folder path for accessing the document (e.g. see paragraph [0010]). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to modifying Polfer's method by including the step of reading information about file, such as name, access permission, date of creation and date of modification, as taught by Long. In doing so, it can be determined which specific data block(s) are valid and based on that those data block(s) is/are replicated. Therefore, it is being advantageous.

As per claims 12, 21 and 27, see arguments with respect to the rejection of claim 3. Claims 12, 21 and 27 are also rejected based on the same rationale as the rejection of claim 3.

8. Claims 4-5, 14-17, 19 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polfer in view of Neufeld (USPN: 5,668,971).

As per claim 4, Polfer teaches the claimed invention as described above. However, Polfer failed to teach the further limitation of cleaning a cache on a computer associated with the storage device before performing any read operations. Neufeld, on the other hand, teaches about cleaning/flushing the cache memory (i.e. the combination of 24 and 28 in Fig. 1) prior to performing any read operations (e.g. see Col. 3, lines 58-65). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the cleaning step of Neufeld in the

method taught by Polfer. In doing so, it will prevent any attempts to fill (invalid) data from the cache memory in response to the read request.

As per claim 5, Polfer teaches a method for replicating data from a storage device as described above in the rejection of claim 1. However, Polfer failed to teach the further limitation of cleaning a cache on a computer associated with the storage device before performing any read operations. Neufeld, on the other hand, teaches about cleaning/flushing the cache memory (i.e. the combination of 24 and 28 in Fig. 1) prior to performing any read operations (e.g. see Col. 3, lines 58-65). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the cleaning step of Neufeld in the method taught by Polfer. In doing so, it will prevent any attempts to fill (invalid) data from the cache memory in response to the read request.

As per claims 15 and 19, see arguments with respect to the rejection of claim 4. Claims 15 and 19 are also rejected based on the same rationale as the rejection of claim 4.

As per claims 14, 16-17 and 22-24, the combination of Polfer and Neufeld teaches the claimed invention as described above. The further limitations of having, the (first) processor residing on the computer, the (second) processor is configured to manage the storage operations of the computer, the (second) processor comprising the filter driver (i.e. the software program) and, the (second) processor is part of a storage management system, are inherently embedded in the system taught by Polfer.

9. Claims 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polfer in view of van Rietschote (USPN: 6,757,778) hereinafter, Rietschote.

As per claims 30 and 33, Polfer teaches the claimed invention as described above. However, Polfer failed to teach that the file system is associated with a virtual storage device used to manage storage of data on the storage device. Rietschote, on the other hand, teaches about associating the file system with a virtual storage device used to manage storage of data on the storage device (e.g. see the abstract). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the teachings of Rietschote in the method and system taught by Polfer since if the storage management system supports a set of storage commands for the virtual storage devices, the storage management system can schedule various applications/operating systems for execution on multiple processing hardware, and present a consistent view of storage for a given application/operating system, independent of which of the multiple processing hardware on which the application/operation system is executing.

Remarks

10. As to the remark, Applicant asserted:

(a) Claims 10, 14-16, 18, 32 and 34 have been amended, and the rejection of claims 10-24 and 32-34 under 112, first paragraph should be withdrawn.

(b) Polfer does not teach or suggest "perform at least one read operation with respect to at least one data block on a storage device based on information in a file system associated with the storage device," as required by claim 1.

Applicant emphasizes that the block map is created by reading the FAT, not by reading the data blocks themselves.

Examiner respectfully traverses Applicant's remark for the following reasons:

With respect to (a), Examiner would like to point out to Applicant that even though the first claimed processor is supported by the "client computer", which includes and is controller by the "first software program", as described on page 7, lines 4-9 of the specification, there is no support in the specification for the second claimed processor for performing I/O accesses recording and/or the read operation as claimed in claims 19-24. Even if the second claimed processor is equated with the storage management system which may be realized using a storage server as pointed out in the specification, the specification does not specify that the storage management system performs I/O accesses recording operation and/or the read operation.

With respect to (b), Polfer clearly disclose that the block map is generated by *examining the FAT* and setting flags indicating whether or not each of the selected blocks contains valid data (Col. 6, lines 20-29). In other words, the data blocks (i.e. at least one data block as claimed) are read (i.e. by examining the FAT) in order to generate the block map.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on 8:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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PIERRE BATAILLE
PRIMARY EXAMINER
4/17/07